Claims

1. Use of galectin-2 or of a nucleic acid coding for galectin-2 or of its complementary strand, or of a nucleic acid hybridizing to such coding nucleic acid or its complementary strand, for the manufacture of a medicament for the treatment or prevention of a patient having a disease with impaired apoptosis of T-cells, macrophages and/or antigen-presenting cells, or for the manufacture of a medicament for the treatment or prevention of organ rejection in a patient having undergone organ transplantation, in particular solid organ transplantation.

2. Use according to claim 1, wherein said impaired apoptosis, in particular said impaired apoptosis of T-cells is involved in or associated with the pathogenesis of said disease.

3. Use according to any of claims 1 – 2, wherein said disease with impaired apoptosis of T-cells is selected from the group comprising autoimmune diseases and malignant T-cell diseases.

4. Use according to claim 3, wherein said autoimmune diseases are selected from the group comprising rheumatoid arthritis, inflammatory bowel diseases, multiple sclerosis, psoriasis, lupus erythematodes, scleroderma, autoimmune hepatitis and autoimmune nephritis.

5. Use according to claim 3, wherein said malignant T-cell diseases are selected from the group comprising peripheral and lymphoblastic/nodal and extranodal T-non-Hodgkin-lymphomas

6. Use according to claim 4, wherein said inflammatory bowel diseases are Crohn's disease or colitis ulcerosa or indeterminate colitis.

7. Use according to claim 4, wherein said autoimmune disease is rheumatoid arthritis.

8. Use according to any of the foregoing claims, wherein said galectin-2 is human or rat galectin-2.

9. Use according to any of the foregoing claims, wherein said galectin-2 has an amino acid sequence selected from the group comprising SEQ ID NO:1 and SEQ ID NO: 2.

10. Use according to any of the foregoing claims, wherein said galectin-2 is administered in combination with an agent suppressing T-cell proliferation and/or an agent inducing T-cell apoptosis.

11. Use according to claim 10, wherein said agent suppressing T-cell proliferation is selected from the group comprising steroids, macrolides, such as cyclosporin and rapamycin, tacrolimus, azathioprine, 6-mercaptopurine, methotrexate and cyclophosphamide.

12. Use according to claim 10, wherein said T-cell apoptosis inducing agent is selected from the group comprising anti-TNFα-antibody (infliximab, adalimumab and CDP 870), etanercept, leflunamide, natalizumab (anti-Integrin α4β7 mAb), visilizumab (anti-CD3 mAb).

13. Use according to any of the foregoing claims, wherein said galectin-2 is administered in combination with a drug that induces T-cell apoptosis via a caspase-8 dependent pathway, or wherein said galectin-2 is administered in a patient failing or having failed to show a measurable response to a drug which is known to normally induce T-cell apoptosis via a caspase-8 dependent pathway.

14. Use according to any of the foregoing claims, wherein said galectin-2 is administered in combination with anti-inflammatory drugs such as 5-Aminosalicylates (5-ASA), corticosteroids, mesalazine, olsalazin, balsalazin, sulfapyridin and non-steroidal anti-inflammatory agent and/or an antirheumatic agent.

15. Use according to claim 14, wherein said antirheumatic agent is a disease modifying anti rheumatic drug (DMARD).

16. Use according to claim 15, wherein said disease modifying anti-rheumatic drug is selected from the group comprising aspirin, naproxen, diclofenac, ibuprofen, naprosyn, indomethacin, piroxican and biological drugs selected from the group comprising anakinra and etodolac.

17. Use according to claim 14, wherein said antirheumatic agent is selected from the group comprising gold compounds, D-penicillamin, antimalaria drugs such as chloroquin, and sulfasalazine.

18. Use according to any of the foregoing claims, wherein said galectin-2 is administered in combination with cyclo-oxygenase-2-inhibitors (COX-2-inhibitors).

19. Use according to claim 18, wherein said cyclo-oxygenase-2-inhibitors are selected from the group comprising celecoxib, rofecoxib, and valdecoxib.

20. Use according to any of the foregoing claims, wherein said galectin-2 is administered in combination with a T-cell activating agent.

21. Use according to any of the foregoing claims, wherein said galectin-2 is administered in combination with a β-galactoside.

22. Use according to claim 21, wherein said β-galactoside is lactose.

23. Use according to any of the foregoing claims, wherein said galectin-2 is administered by systemical administration and/ or topical administration.

24. Use according to any of the foregoing claims, wherein said galectin-2 is administered twice daily in an amount of 0.75 mg to 1.5 mg/kg body weight per dose, preferably in an amount of about 1 mg/kg body weight per dose.

25. Use according to any of claims 23 - 24, wherein said administration occurs by ingestion, preferably orally or anally, and/or by injection, preferably by intravenous, intramuscular, intraperitoneal or subcutaneous injection, and/or by nasal application.

26. Use according to any of claims 23 – 25, wherein said galectin-2 is administered as enema and/or as suppository and/or as delayed release dosage form, e. g. encapsulated in a pH dependent release matrix.

27. Use according to any of claims 23 – 26, wherein said galectin-2 is administered in a pegylated or non-pegylated form or as a mixture of the two forms.

28. Use according to any of the foregoing claims, wherein said patient is one having a pathological condition in which, before administration of galectin-2, a subset of the patient's T-cells and/or a subset of the patient's macrophages and/or a subset of the patient's antigen-presenting-cells fail to undergo apoptosis, preferably adequate apoptosis or wherein a subset of the patient's T-cells and/or macrophages and/or antigen-presenting cells show an impaired or defective apoptosis.

29. Use according to claim 28, wherein said subset of T-cells are T-cells that have previously been activated, preferably via the CD3-pathway or the CD2-pathway or via mitogens, co-stimulatory molecules such as CD28 or CD40, or other pathways such as Toll-like receptors or integrins.

30. Use according to any of claims 28 – 29, wherein said subset of T-cells and/or macrophages and/or antigen-presenting cells are not resting.

31. Use according to claim 30, wherein said subset of T-cells and/or macrophages and/or antigen-presenting cells are not cells that have exited from the cell cycle or are not cells that are arrested in any phase of the cell-cycle.

32. Use according to any of claims 28 – 31, wherein said subset of T-cells and/or macrophages and/or antigen-presenting cells is primarily located in said patient's joints, preferably synovial joints, and/or in said patient's gastrointestinal tract, preferably the lining of said gastrointestinal tract, and/or in said patient's skin, and/or lung and/or liver and/or kidney and/or are a population of peripheral blood cells which are recruited in a mucosa during inflammation.

33. Use according to any of the foregoing claims, wherein said patient is one having a pathological condition in which, before administration of galectin-2, the ratio between Bcl-2-protein and Bax-protein in T-cells is disbalanced in favour of the anti-apoptotic Bcl-2.

34. Use of galectin-2 or of a nucleic acid coding for galectin-2 or of its complementary strand, or of a nucleic acid hybridizing to such coding nucleic acid or to its complementary strand, as an immunomodulating agent.

35. Use according to claim 34, as an immunomodulating agent acting on T-cells and/or macrophages and/or antigen-presenting cells.

36. Use according to claim 35, wherein said T-cells and/or macrophages and/or antigen-presenting cells are human.